

REQUEST FOR BOARD ACTION

Henderson County Board of Commissioners

Meeting Date: July 2, 2007

Subject: Water Line Extensions - Pinnacle Falls, Phase 1 (On Site)
Pinnacle Falls, Off Site
Summit Springs (On Site)
Water Utility Extension - Edneyville Inn Subdivision

Attachments: Project Summary
Engineer's Report
Vicinity and Project Maps
County Review Sheet

Summary of Request:

The City of Hendersonville has requested the County comments on proposed water line extension for Pinnacle Falls, Phase 1 (On Site); Pinnacle Falls, Off Site; Summit Springs (On Site); and Edneyville Inn Subdivision.

A City of Hendersonville Project Summary Sheet, with backup documents and County Review Sheet with Staff comments are attached for Board review and action.

Board Action Request:

Planning Staff recommends the Board of Commissioners approve these water line extensions.

Suggested Motion:

I move that the Board approve Pinnacle Falls, Phase 1 (On Site); Pinnacle Falls, Off Site; Summit Springs (On Site); and Edneyville Inn Subdivision water line extensions and direct Staff to convey the County's comments to the City of Hendersonville.

**City of Hendersonville - Project Summary
Water Line Extension
Pinnacle Falls, Phase 1**

Date: December 18, 2006

This is a project to extend existing water lines to provide water service to a proposed major residential development consisting of one-hundred forty-five (145) lots.

This project is under the reviewing jurisdiction of: Henderson County

This project requires approximately **6135** linear feet of water line sized as following:

Approximate Length:	Description:
3,735 lf	6" DIP CL 350
2,400 lf	2" PVC SDR 13.5

Fire Protection will be provided by the installation of six (6) fire hydrant(s).

The entire cost of the proposed water line extension is to be paid for by Pinnacle Falls, LLC of Hendersonville, NC.

The undersigned represents this utility extension line request has been evaluated in light of the adopted land use plan for the municipality or Henderson County. In the absence of such a plan for the general area to be served, this extension has been evaluated in terms of its future impact on existing land uses.

Reviewing Jurisdiction: Henderson County

Signing Official: _____

Date of Review: _____

Approved Disapproved

Narrative Comments Provided: Yes No

Based on the above information, the Water & Sewer department has the capacity to support this additional infrastructure and associated connections and hereby recommends approval of said project contingent upon final approval of construction plans and specifications by the Water & Sewer Department

A motion is needed to approve and accept this project. Suggest wording is as follows:

I move to accept this water line extension project and to authorize the City manager to execute the water line extension agreement on behalf of the City.

Water & Sewer Department:	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	Date: _____
Hendersonville City Council:	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	Date: _____

**PINNACLE FALLS
(PHASE 1)**

**HENDERSONVILLE
NORTH CAROLINA**

ENGINEER'S REPORT

**WATER DISTRIBUTION SYSTEM
IMPROVEMENTS**



Prepared by:
MOUNTAIN ENGINEERING COMPANY
121 Third Avenue West Suite 2
Hendersonville North Carolina 28792

FUTURE SERVICE AREAS

This water system extension is proposed only for the **Pinnacle Falls** community and would not support an expansion of the system. No future service area is anticipated or planned. The areas around this project would be served by future lines.

PRESENT and ANTICIPATED WATER DEMAND

There is no current water use. Once the community is completed, the maximum anticipated water demand could be **58,000 GPD** (**145 units @ 400** gallons per day). Actual usage would likely be much less since the majority of homes will be occupied by small families (retired couples).

CHARACTER of the WATER SUPPLY SOURCE

The water supply for this project is from the City of Hendersonville Water Treatment Plant.

AGREEMENTS to PURCHASE WATER :

Not applicable.

FACILITIES USEFUL LIFE

For this project, the expected useful life of the system is at least thirty (**30**) years.

MAXIMUM DAILY TREATED WATER SUPPLY and MAXIMUM DAILY DEMAND

The maximum daily treated water supply for the City of Hendersonville Water Treatment Plant is **12.0 MGD** and the average daily demand is **7.2 MGD** with a daily peak of **9.5 MGD**.

CONSIDERATION of ALTERNATIVES to CONSTRUCTING A NEW WATER SYSTEM

Existing wells in use near Pinnacle Falls lots have consistently low yields. It isn't reasonable to imagine that individual wells would be cost effective or useful.

POPULATION RECORDS and TRENDS

In **2000**, the population of Henderson County was **89,173**. And, from 1990 to 2000, the growth rate was twenty-seven point nine percent (**27.9 %**).

PRESENT and FUTURE YIELD FROM the SOURCE of SUPPLY

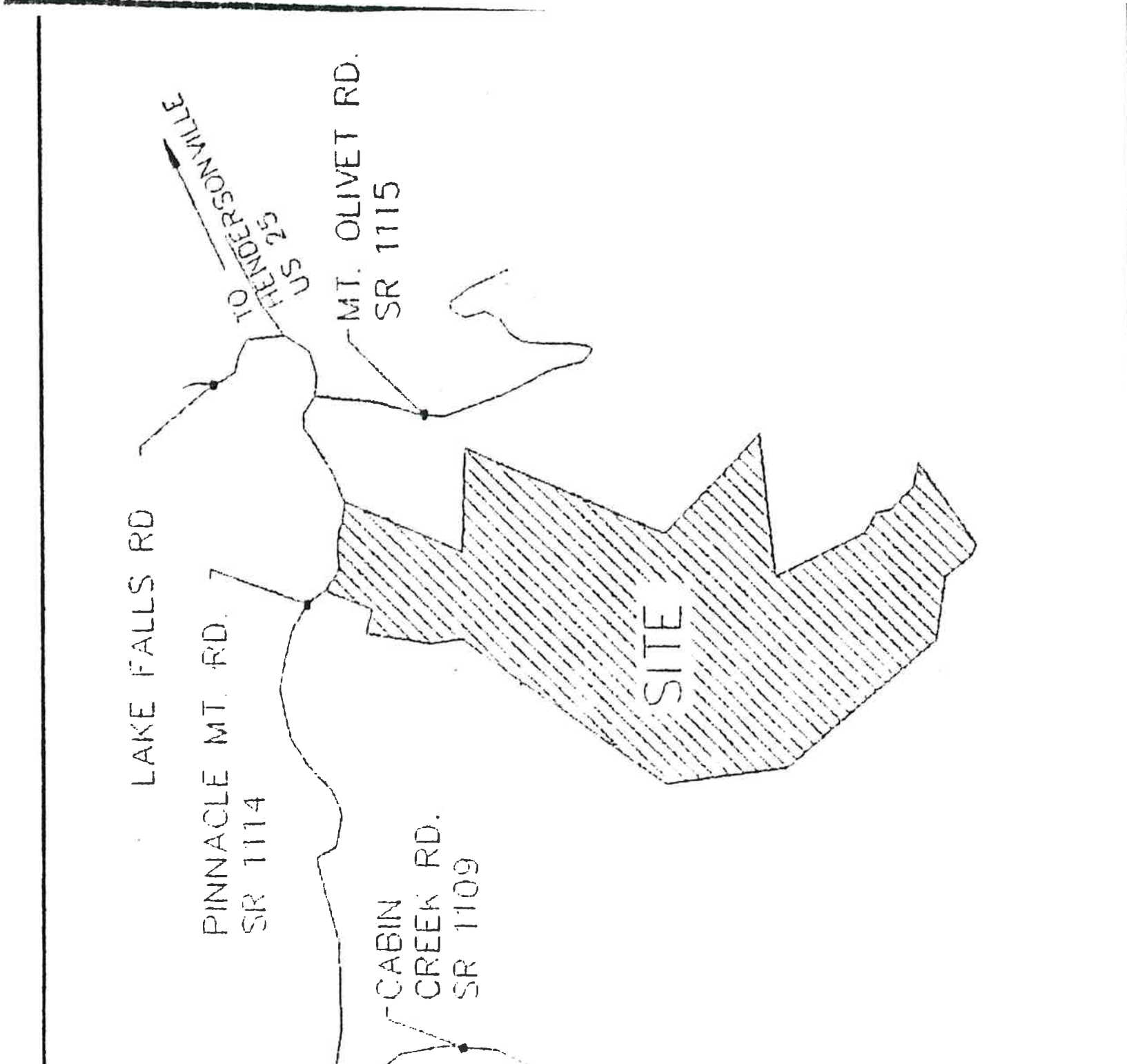
The Water Plant for the City of Hendersonville draws water from the Mills River. The present and future yield from this source is expected to be adequate for the City and the community's needs.

PROPOSED WATER TREATMENT PROCESSES

Not applicable.

DESIGN BASIS

The design basis for this project is to provide **40 psi** minimum pressure as well as adequate flow throughout the system.



LAKE FALLS RD

PINNACLE MT. RD.
SR 1114

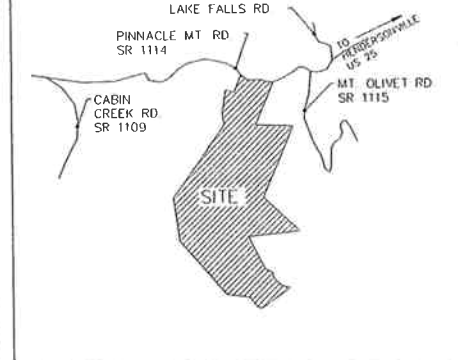
CABIN
CREEK RD.
SR 1109

TO
US 25
HENDERSONVILLE

MT. OLIVET RD.
SR 1115

SITE

LOCATION MAP



LOCATION MAP

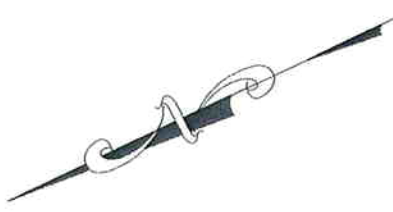
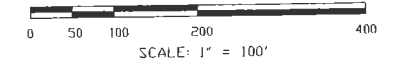


NOTES:
 RELATIONSHIP OF WATER & SEWER MAINS:
 CONTRACTOR IS REQUIRED TO COMPLY
 WITH THE N.C. ADMINISTRATIVE CODE,
 RULES GOVERNING PUBLIC WATER
 SYSTEMS, TITLE 15A NCAC 18C.0906
 (SEE SECTION NO. 1200.10 IN THE
 TECHNICAL SPECIFICATIONS)

N.C. ONE CALL
 CALL BEFORE YOU DIG
 1-800-632-4949

LEGEND

SS	PROPOSED SEWER LINE
SW	PROPOSED STORM WATER LINE
---	PROPOSED WATER LINE
+	FIRE HYDRANT
+	FIRE HYDRANT
+	AIR RELEASE VALVE
+	WATER SERVICE LATERAL
+	SANITARY SEWER MANHOLE
+	STORM WATER CATCH BASIN



PINNACLE FALLS

DEVELOPER PINNACLE FALLS, LLC

LAND PLANNER LUTHER E. SMITH & ASSOCIATES, P.A.
 129 3RD AVE WEST
 HENDERSONVILLE, NC 28792
 TEL: (828) 697-2307, FAX (828) 697-8458

SURVEYOR WAGGONER & RHODES
 545 OLD SPARTANBURG ROAD
 HENDERSONVILLE, NC 28792
 TEL: (828) 693-1022, FAX (828) 693-1022

ORTHOPHOTO #9555-97:9565-23

**PINNACLE FALLS
 (PHASE 1)
 HENDERSONVILLE**

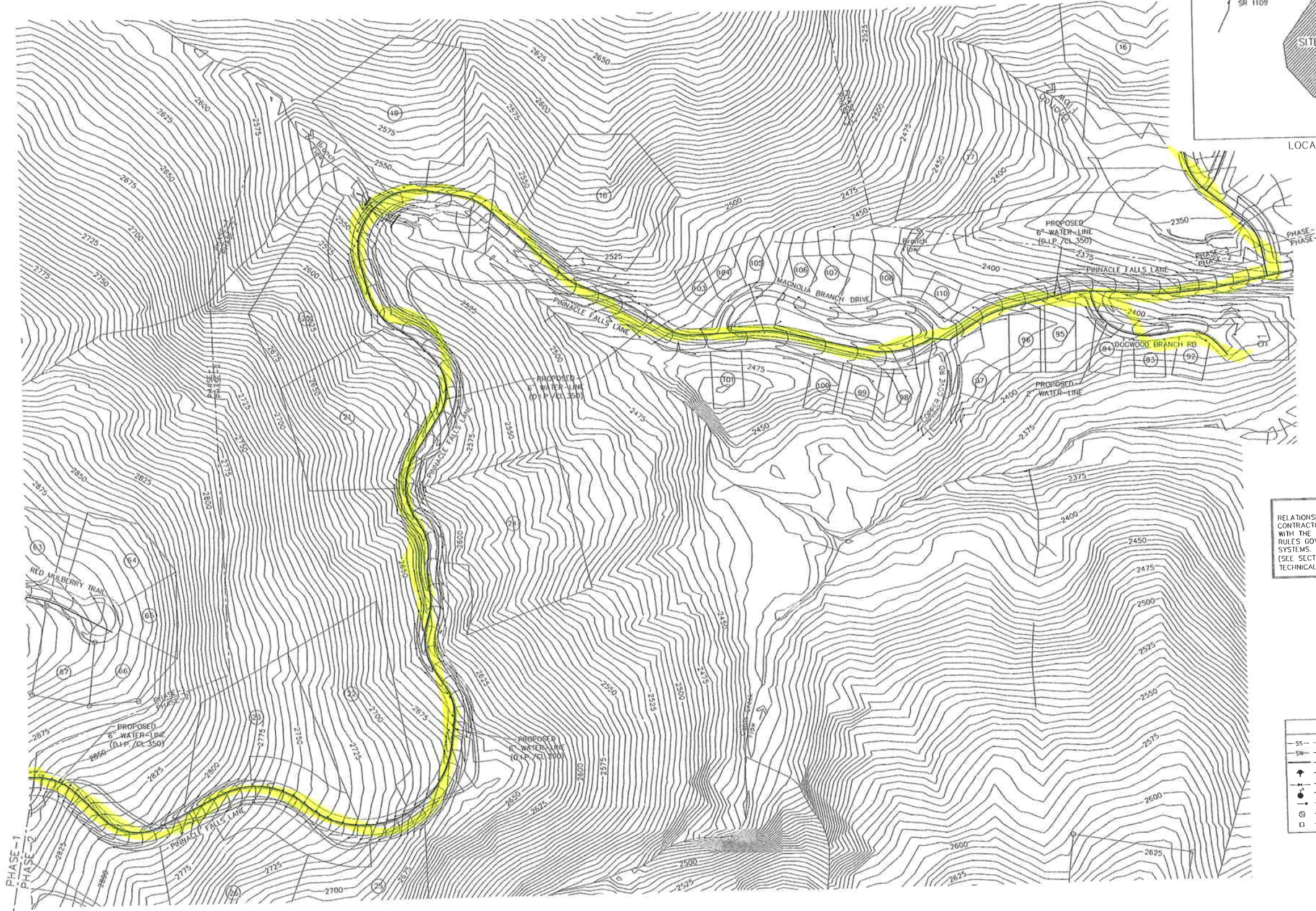
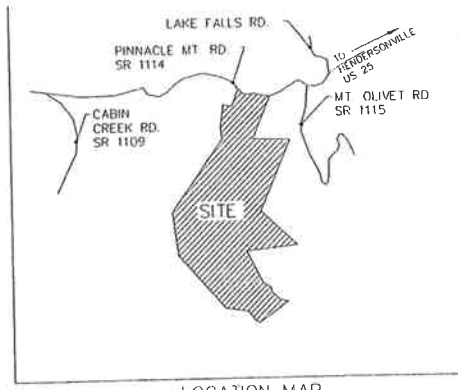
**MASTER PLAN
 WATER DISTRIBUTION SYSTEM IMPROVEMENTS**

CWC
 11-28-06
 04-1-106
 04-1-106
 PINNACLE FALLS
 DRAWING NO.



SHEET
 1 of 10

MOUNTAIN ENGINEERING CO.
 CIVIL ENGINEERING • SITE PLANNING
 131 THIRD AVE WEST, SUITE 2 HENDERSONVILLE, NC 28792
 PHONE (828) 697-2182 - FAX (828) 697-8458

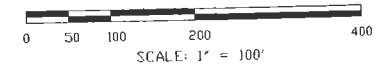


NOTES:
 RELATIONSHIP OF WATER & SEWER MAINS CONTRACTOR IS REQUIRED TO COMPLY WITH THE N.C. ADMINISTRATIVE CODE, RULES GOVERNING PUBLIC WATER SYSTEMS, TITLE 15A NCAC 18C.0906. (SEE SECTION NO. 1200.10 IN THE TECHNICAL SPECIFICATIONS.)

N.C. ONE CALL
 CALL BEFORE YOU DIG
 1-800-632-4349

LEGEND

SS	PROPOSED SEWER LINE
SW	PROPOSED STORM WATER LINE
---	PROPOSED WATER LINE
+	FIRE HYDRANT
+	FIRE HYDRANT
+	AIR RELEASE VALVE
+	WATER SERVICE LATERAL
⊗	SANITARY SEWER MANHOLE
⊕	STORM WATER CATCH BASIN



MOUNTAIN ENGINEERING CO.
 CIVIL ENGINEERING • SITE PLANNING
 121 THIRD AVE. WEST, SUITE 2 HENDERSONVILLE, NC 28752
 PHONE (828) 897-2122 - FAX (828) 607-8468

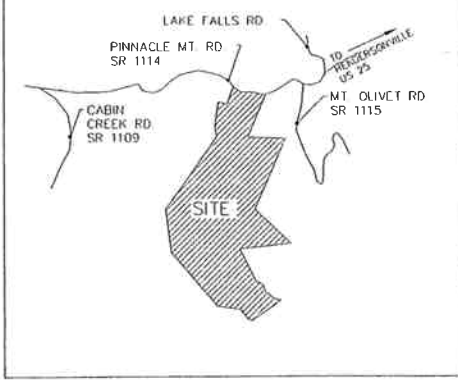
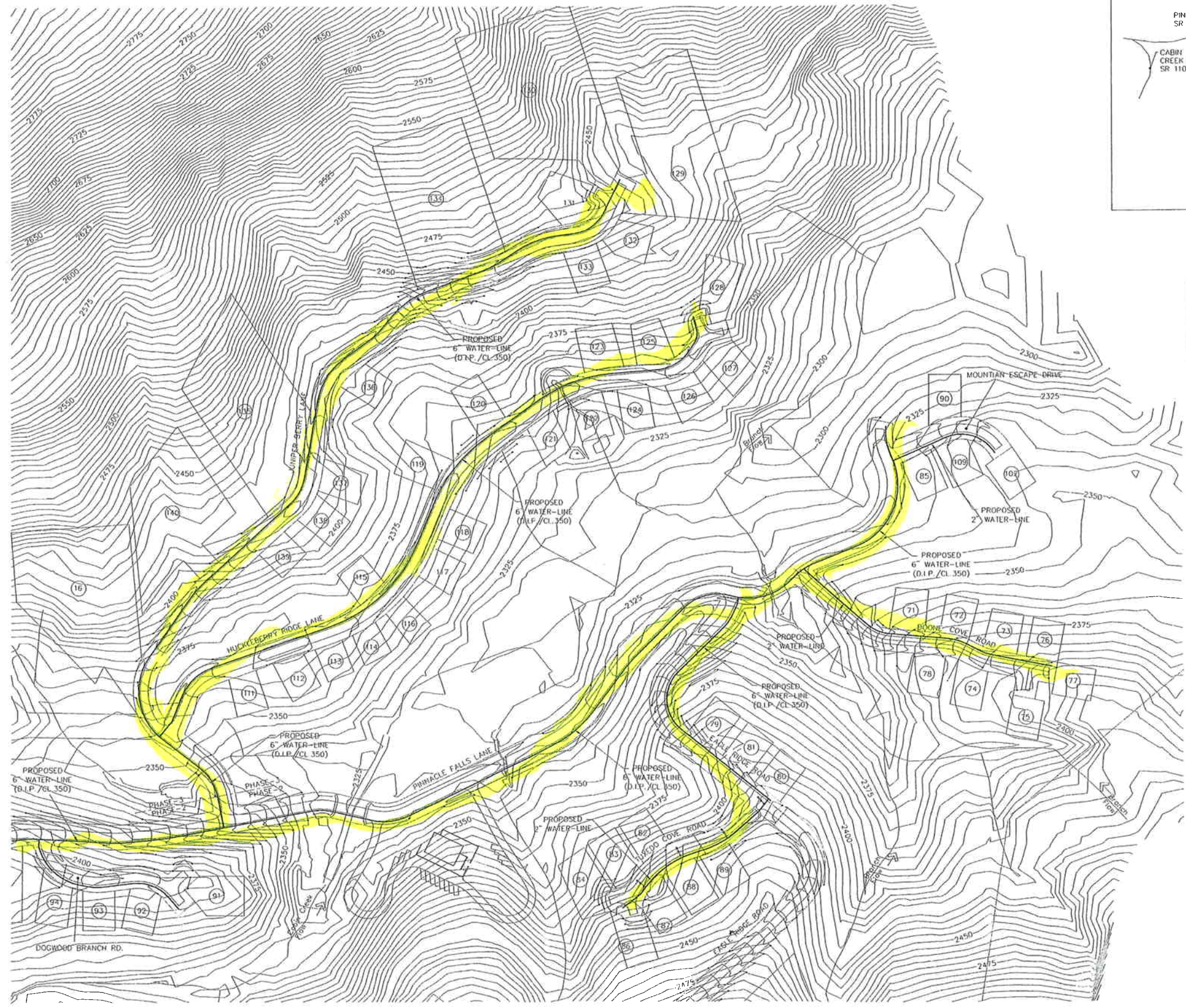
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PINNACLE FALLS (PHASE 1)
 HENDERSONVILLE
 HENDERSON COUNTY, NORTH CAROLINA

MASTER PLAN
WATER DISTRIBUTION SYSTEM IMPROVEMENTS

CWC
 11-28-06
 DATE
 04-106
 JBJ
 CHECKED BY
 PINNACLE FALLS
 DRAWING NO.

SHEET
 2 of 10

12/14/06

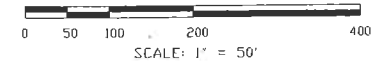


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 SYSTEMS TITLE 15A NCAC 18C.0906
 (SEE SECTION NO. 1200.10 IN THE
 TECHNICAL SPECIFICATIONS.)

N.C. ONE CALL
 CALL BEFORE YOU DIG
 1-800-832-4949

LEGEND

SS	PROPOSED SEWER LINE
SW	PROPOSED STORM WATER LINE
—	PROPOSED WATER LINE
⬆	FIRE HYDRANT
⬆	FIRE HYDRANT
⬆	AIR RELEASE VALVE
⬆	WATER SERVICE LATERAL
⊙	SANITARY SEWER MANHOLE
□	STORM WATER CATCH BASIN



12/14/06

MOUNTAIN ENGINEERING CO.
 CIVIL ENGINEERING • SITE PLANNING
 121 THIRD AVE. WEST, SUITE 2 HENDERSONVILLE, NC 28792
 PHONE (828) 697-9122 • FAX (828) 697-8458

ORTHOPHOTO #9555-97:9565-23
 PINNACLE FALLS
 (PHASE 1)
 HENDERSONVILLE
 HENDERSON COUNTY, NORTH CAROLINA

MASTER PLAN
 WATER DISTRIBUTION SYSTEM IMPROVEMENTS

11-28-06	GVC	DATE	BY
04-106	JBJ	CHECKED BY	
		PROJECT NO.	PINNACLE FALLS
		DRAWING NO.	

SHEET
 3 of 10

HENDERSON COUNTY REVIEW OF CITY WATER LINE EXTENSIONS

Project Name: Pinnacle Falls, Phase 1 (On Site)
 Size of Water Line (Main & Distribution Pipe Size): 3,735 lf. – 6" DIP CL 350; 2,400 lf. – 2" PVC SDR 13.5
 County Staff Reviewing Extension: Rocky Hyder, Fire Marshal; Matt Card, Subdivision Administrator; Autumn Radcliff, Senior Planner

Has the project been reviewed under the **County Subdivision Ordinance**? Yes No N/A

Date reviewed: _____
 Action: Approved with conditions.
 Conditions: Standard conditions.
 Comments: The project was approved for both individual and community well and septic systems.

Has the project been reviewed under the **County Manufactured Park Ordinance**? Yes No N/A

Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Has the project been reviewed under the **County Zoning Ordinance (i.e. Special-Use or Conditional-Use Permit)?** Yes No N/A

Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Is the project subject to **any other County Land Use Ordinance**? Yes No N/A

If yes, explain: _____

Does the project conform with the **2020 Henderson County Comprehensive Plan (CCP)**? Yes No N/A

The project is located in the RAA which does not generally support the extension of public utilities.

Does the project have **adequate hydrant location and spacing**? Yes No N/A

Description of **hydrant type and thread**: Mueller Centurion – National Standard Thread

Does the estimated flow rate (gpm) meet **fire protection standards**? Meets standard for structure spacing of 100 feet or more. Yes No N/A

BOARD OF COMMISSIONERS APPROVAL

- Approved
- Not Approved
- Conditional Approval (See Comments)

Date of Board Review: _____
 Comments: _____

**City of Hendersonville - Project Summary
Water Line Extension
Pinnacle Falls, Off Site**

Date: March 21, 2007

This is a project to extend existing water lines to provide water service to a proposed major residential development consisting of one-hundred forty-five (145) lots.

This project is under the reviewing jurisdiction of: Henderson County

This project requires approximately **11,150** linear feet of water line sized as following:

Approximate Length:	Description:
11,150	12" DIP CL350

Fire Protection will be provided by the installation of eleven (11) fire hydrants.

The entire cost of the proposed water line extension is to be paid for by Pinnacle Falls, LLC of Hendersonville, NC.

The undersigned represents this utility extension line request has been evaluated in light of the adopted land use plan for the municipality or Henderson County. In the absence of such a plan for the general area to be served, this extension has been evaluated in terms of its future impact on existing land uses.
Reviewing Jurisdiction: Henderson County
Signing Official: _____
Date of Review: _____
 Approved Disapproved
Narrative Comments Provided: Yes No

Based on the above information, the Water & Sewer department has the capacity to support this additional infrastructure and associated connections and hereby recommends approval of said project contingent upon final approval of construction plans and specifications by the Water & Sewer Department.

A motion is needed to approve and accept this project. Suggest wording is as follows:

I move to accept this water line extension project and to authorize the City manager to execute the water line extension agreement on behalf of the City.

Water & Sewer Department:	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	Date: _____
Hendersonville City Council:	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	Date: _____

ENGINEER'S REPORT

Proposed Water Line
For
Pinnacle Falls
Offsite Water System Improvements

Information required per 15A NCAC 18C.0307 is as follows:

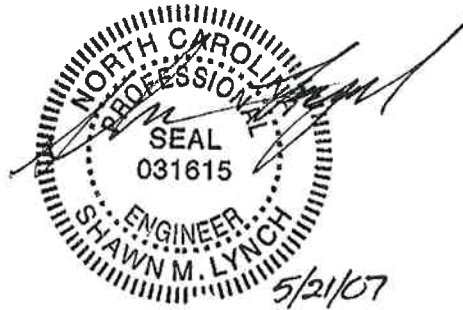
1. The proposed extension will tie into an existing hydro-pneumatic pump station currently serving the Kenmure development located along SR 1114 (Pinnacle Mountain Road) which is owned by the City of Hendersonville.
2. The proposed water line extension is located in Henderson County as well as in the utility service district of the City of Hendersonville and will serve a new residential subdivision. The surrounding property on the east, south, north and west side of the project is served by private onsite systems.
3. The applicant is: *Pinnacle Falls, LLC
429 N. Main Street
Hendersonville, NC 28792*
4. The proposed project is located along the right-of-way of SR 1114, Pinnacle Mountain Road and is intended to provide water service to the new Pinnacle Falls residential subdivision.
5. The future service area for the proposed extension is anticipated to grow with the addition of new residential developments and conforms to the City's anticipated service area district and anticipated demands.
6. Not applicable.
7. Not applicable.
8. The proposed project involves the construction of approximately approximately 13,625 LF of 12" DIP water main including improvements to an existing hydro-pneumatic pump station and a new 234,000 gallon storage tank. The anticipated future peak water usage is approximately 95,000 gallons per day. The current City-wide water usage and production is shown in Item #13 in this Engineer's Report.
9. Water is to be supplied to this extension by the City of Hendersonville.
10. Not applicable.
11. Not applicable.
12. The proposed water line extension is to be constructed of ductile iron pipe with a minimum design service life of 50 years.
13. The maximum daily treated water supply for the City of Hendersonville is 12 M.G.D. The maximum daily demand is 6.5 M.G.D.

14. Not applicable.

15. Refer to the attached hydraulic modeling to review the anticipated performance of the water system.

The above information is believed to be accurate for the proposed development entitled Pinnacle Falls Waterline Improvements as designed and specified in the construction documents entitled Utility Plans prepared by Brooks & Medlock Engineering, PLLC and dated 04/18/05, latest revision.


Signature



P WATERLIN HEND



VICINITY MAP

Water Construction Notes:

- C.1 Contractor shall furnish all bends and fittings required to install and route waterlines, as shown, herein in accordance with the City of Hendersonville Standard Specifications.
- C.2 Minimum bury to top of pipe shall be 48 inches unless indicated otherwise.
- C.3 All tees and bends shall have thrust block installed bearing against virgin soil. Refer to details contained herein.
- C.4 Pipe 8" and larger shall be ductile iron - class 350. Pipe smaller than 8" shall be AWWA C-900 PVC. Materials and installation shall meet the latest versions of the following specifications:
 - ASTM - D1784 and D2241 Materials
 - ASTM - D1785 and D2241 Dimensions
 - ASTM - D2465 Fittings
 - ASTM - D3139 Flexible Elastomeric Joints for 2" Diameter and Greater
 - ASTM - F477 Elastomeric Seals for 2" Diameter and Greater
 - ASTM - D2774 Underground Installation

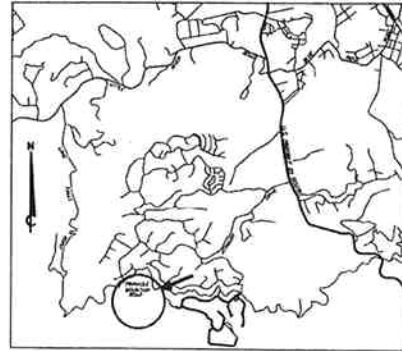
Pipe shall be gasketed joint. Gate valves (AWWA C509) shall be cast iron, resilient seated; for buried service. 2 inch square operating nut, closing clockwise. Tapping sleeve shall be cast iron 2-piece bolted sleeve with flanged outlet for new branch connection. Use sleeve that mates with size and type pipe material being tapped and connected.

Pipe and fittings must bear the National Sanitation Foundation NSF seal.
- C.5 Pressure Testing:
 - All new waterlines shall be pressure tested to the newly installed valves in accordance with applicable provisions of AWWA Standard C600, with the following exceptions and provisions:
 - a. Hydrostatic test pressure shall be minimum 150 psi, or 1.5 times working pressure and maintained for a two-hour period or to the full satisfaction of the City.
 - b. Allowable leakage shall not exceed 11.65 gallons per day per inch of diameter per mile of water main during a 2-hour hydrostatic test. Reference AWWA Standard C600, Section 4.1.6.

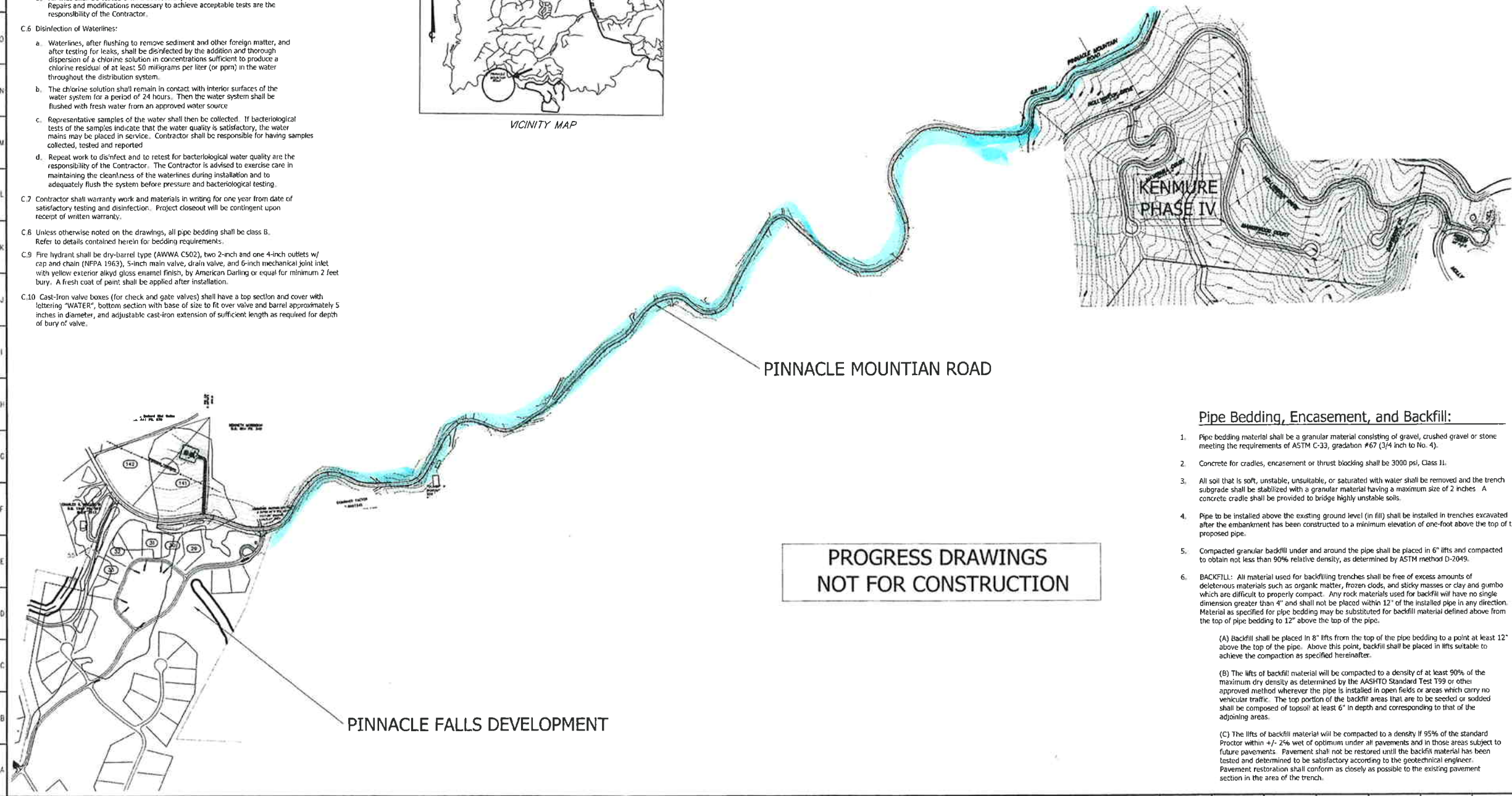
Pipe Diameter	Allowable Leakage (G)
6"	1.10 gallons in two hours
8"	1.47
10"	1.84
 - c. All visible leaks or seepage shall be repaired.
 - d. All lines shall be tested until a successful pressure test result is demonstrated. Repairs and modifications necessary to achieve acceptable tests are the responsibility of the Contractor.
- C.6 Disinfection of Waterlines:
 - a. Waterlines, after flushing to remove sediment and other foreign matter, and after testing for leaks, shall be disinfected by the addition and thorough dispersion of a chlorine solution in concentrations sufficient to produce a chlorine residual of at least 50 milligrams per liter (or ppm) in the water throughout the distribution system.
 - b. The chlorine solution shall remain in contact with interior surfaces of the water system for a period of 24 hours. Then the water system shall be flushed with fresh water from an approved water source.
 - c. Representative samples of the water shall then be collected. If bacteriological tests of the samples indicate that the water quality is satisfactory, the water mains may be placed in service. Contractor shall be responsible for having samples collected, tested and reported.
 - d. Repeat work to disinfect and to retest for bacteriological water quality are the responsibility of the Contractor. The Contractor is advised to exercise care in maintaining the cleanliness of the waterlines during installation and to adequately flush the system before pressure and bacteriological testing.
- C.7 Contractor shall warranty work and materials in writing for one year from date of satisfactory testing and disinfection. Project closeout will be contingent upon receipt of written warranty.
- C.8 Unless otherwise noted on the drawings, all pipe bedding shall be class B. Refer to details contained herein for bedding requirements.
- C.9 Fire hydrant shall be dry-barrel type (AWWA C502), two 2-inch and one 4-inch outlets w/ cap and chain (NFPA 1963), 5-inch main valve, drain valve, and 6-inch mechanical joint inlet with yellow exterior alkyd gloss enamel finish, by American Darling or equal for minimum 2 feet bury. A fresh coat of paint shall be applied after installation.
- C.10 Cast-iron valve boxes (for check and gate valves) shall have a top section and cover with lettering "WATER", bottom section with base of size to fit over valve and barrel approximately 5 inches in diameter, and adjustable cast-iron extension of sufficient length as required for depth of bury of valve.

PINNACLE FALLS WATERLINE EXTENTION PROJECT

HENDERSON COUNTY, NORTH CAROLINA



VICINITY MAP



PINNACLE MOUNTIAN ROAD

PINNACLE FALLS DEVELOPMENT

PROGRESS DRAWINGS
NOT FOR CONSTRUCTION

Pipe Bedding, Encasement, and Backfill:

1. Pipe bedding material shall be a granular material consisting of gravel, crushed gravel or stone meeting the requirements of ASTM C-33, gradation #67 (3/4 inch to No. 4).
2. Concrete for cradles, encasement or thrust blocking shall be 3000 psi, Class II.
3. All soil that is soft, unstable, unsuitable, or saturated with water shall be removed and the trench subgrade shall be stabilized with a granular material having a maximum size of 2 inches. A concrete cradle shall be provided to bridge highly unstable soils.
4. Pipe to be installed above the existing ground level (in fill) shall be installed in trenches excavated after the embankment has been constructed to a minimum elevation of one-foot above the top of the proposed pipe.
5. Compacted granular backfill under and around the pipe shall be placed in 6" lifts and compacted to obtain not less than 90% relative density, as determined by ASTM method D-2049.
6. BACKFILL: All material used for backfilling trenches shall be free of excess amounts of deleterious materials such as organic matter, frozen clods, and sticky masses or clay and gumbo which are difficult to properly compact. Any rock materials used for backfill will have no single dimension greater than 4" and shall not be placed within 12" of the installed pipe in any direction. Material as specified for pipe bedding may be substituted for backfill material defined above from the top of pipe bedding to 12" above the top of the pipe.

(A) Backfill shall be placed in 8" lifts from the top of the pipe bedding to a point at least 12" above the top of the pipe. Above this point, backfill shall be placed in lifts suitable to achieve the compaction as specified hereinafter.

(B) The lifts of backfill material will be compacted to a density of at least 90% of the maximum dry density as determined by the AASHTO Standard Test T99 or other approved method wherever the pipe is installed in open fields or areas which carry no vehicular traffic. The top portion of the backfill areas that are to be seeded or sodded shall be composed of topsoil at least 6" in depth and corresponding to that of the adjoining areas.

(C) The lifts of backfill material will be compacted to a density of 95% of the standard Proctor within +/- 2% wet of optimum under all pavements and in those areas subject to future pavements. Pavement shall not be restored until the backfill material has been tested and determined to be satisfactory according to the geotechnical engineer. Pavement restoration shall conform as closely as possible to the existing pavement section in the area of the trench.

			<p>PROGRESS DRAWINGS - DO NOT USE FOR CONSTRUCTION</p>	<p>REVISIONS/SUBMISSIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th>No.</th> <th>REVISIONS/SUBMISSIONS</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>RELEASED FOR BIDDING</td> <td>3-30-07</td> </tr> <tr> <td>2.</td> <td>REVISED PER CDH COMMENTS</td> <td>4-13-07</td> </tr> <tr> <td>3.</td> <td>RELEASED FOR PERMITTING</td> <td>4-25-07</td> </tr> <tr> <td>4.</td> <td>REVISED PER HCDOT COMMENTS</td> <td>5-10-07</td> </tr> </tbody> </table>	No.	REVISIONS/SUBMISSIONS	Date	1.	RELEASED FOR BIDDING	3-30-07	2.	REVISED PER CDH COMMENTS	4-13-07	3.	RELEASED FOR PERMITTING	4-25-07	4.	REVISED PER HCDOT COMMENTS	5-10-07
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4.	REVISED PER HCDOT COMMENTS	5-10-07																	
<p>Designed: N.E.D. Checked: A.K.H. Drawn: S.M.L.</p>	<p>Reviewed: S.M.L. Scale: AS NOTED Date: 1-30-07</p>	<p>17 Avilington Street Asheville, N.C. 28801 Phone: 1-828-232-4700 Fax: 1-828-232-1331 www.brooksandmedlock.com</p>																	
		<p>BROOKS & MEDLOCK ENGINEERING, P.L.L.C. STRUCTURAL • CIVIL • ENVIRONMENTAL • SURVEYING</p>																	
<p>PINNACLE MOUNTAIN ROAD WATERLINE EXTENSION</p>		<p>NORTH CAROLINA HENDERSONVILLE</p>																	
<p>Project No: 194006</p>	<p>CS</p>	<p>1 OF 12 Drawing Title: COVER SHEET</p>																	

HENDERSON COUNTY REVIEW OF CITY WATER LINE EXTENSIONS

Project Name: Pinnacle Falls, Off Site
 Size of Water Line (Main & Distribution Pipe Size): 11,150' – 12" DIP CL 350
 County Staff Reviewing Extension: Rocky Hyder, Fire Marshal; Matt Card, Subdivision Administrator; Autumn Radcliff, Senior Planner

Has the project been reviewed under the **County Subdivision Ordinance**? Yes No N/A
 Date reviewed: Last reviewed on 10/17/06
 Action: Approved with conditions.
 Conditions: Standard conditions.
 Comments: _____

Has the project been reviewed under the **County Manufactured Park Ordinance**? Yes No N/A
 Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Has the project been reviewed under the **County Zoning Ordinance (i.e. Special-Use or Conditional-Use Permit)?** Yes No N/A
 Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Is the project subject to **any other County Land Use Ordinance**? Yes No N/A
 If yes, explain: _____

Does the project conform with the **2020 Henderson County Comprehensive Plan (CCP)**? Yes No N/A

The project is located in the RAA which generally discourages the extension of public utilities.
 Does the project have **adequate hydrant location and spacing**? Yes No N/A

Description of **hydrant type and thread**: Mueller Centurion – National Standard Thread
 Does the estimated flow rate (gpm) meet **fire protection standards**? Meets standard for structure spacing of 100 feet or more Yes No N/A

BOARD OF COMMISSIONERS APPROVAL

Approved
 Not Approved
 Conditional Approval (See Comments)

Date of Board Review: _____
 Comments: _____

**City of Hendersonville - Project Summary
Water Line Extension
Summit Springs On Site**



Date: March 16, 2006

This is a project to extend existing lines to provide service to a proposed single family subdivision development. This extension will serve a total of one hundred sixty seven (167) lots

This project is under the reviewing jurisdiction of: **Henderson County.**

This project requires approximately **16,429** linear feet of water line sized as following:

Approximate Length	Description
10,219	8" DIP CL350
2,580	6" DIP CL350
3635	2" PVC SDR 13.5

Fire Protection will be provided by the installation of twenty-four (24) fire hydrant(s).

The entire cost of the proposed water line extension is to be paid for by Summit Springs, LLC of Hendersonville, NC

The undersigned represents this utility extension line request has been evaluated in light of the adopted land use plan for the municipality or Henderson County. In the absence of such a plan for the general area to be served, this extension has been evaluated in terms of its future impact on existing land uses.

Reviewing Jurisdiction: Henderson County

Signing Official: _____

Date of Review: _____

Approved Disapproved

Narrative Comments Provided: Yes No

Based on the above information, the Water & Sewer department has the capacity to support this additional infrastructure and associated connections and hereby recommends approval of said project.

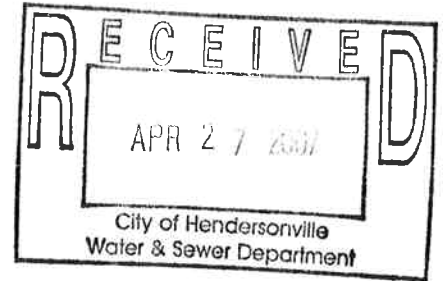
A motion is needed to approve and accept this project. Suggest wording is as follows:

I move to accept this water line extension project and to authorize the City manager to execute the water line extension agreement on behalf of the City.

Water & Sewer Department:	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	Date: _____
Hendersonville City Council:	<input type="checkbox"/> Approved	<input type="checkbox"/> Disapproved	Date: _____

**ADDENDUM
TO THE
CITY OF HENDERSONVILLE
ENGINEER'S REPORT**

Proposed Water Line Improvements
For
Water Utility Construction Plans for



SUMMIT SPRINGS DEVELOPMENT – ON-SITE DISTRIBUTION
March 26, 2007

Additional information as described in 15A NCAC 18C .0307 is as follows:

1. The proposed water line extension will connect to the terminus of an off-site 8" water main to be installed under separate approval. The terminus of this off-site main is on Hill Drive (S.R. 1891) at the main entrance to the Summit Springs Subdivision. The on-site extension will consist of approx. 10,220 lf of 8" D.I. water line, 2,580 l.f. of 6" D.I. mains and 3,635 l.f. of 2" SDR 13.5 pvc, approximately 1,070 lf steel encasement within the proposed NCDOT right-of-way crossings.
2. The proposed water line extension will serve the Summit Springs Development for residential usage and fire protection, located at: Hill Drive (SR 1891) Hendersonville, North Carolina
3. The applicant for this water line extension is as follows:
Summit Springs, LLC
Jeff Cosgrove, Manager
145 Terrace Mountain Drive
Hendersonville, NC 28792
828-777-0777
4. The proposed extension will serve a 160 lot residential sub-division development.
5. No further service area planned.
6. N/A
7. N/A
8. The peak water usage for this project has the potential of being nearly 46 gpm and 66,800 gpd.
9. Water will be supplied to this extension by the Hendersonville Water and Sewer Department.
10. N/A
11. N/A
12. The proposed waterline extension shall be constructed of Ductile Iron Pipe with a minimum design service life of fifty years. The design, treatment, and distribution of this water system shall comply with the standards for City of Hendersonville.
13. N/A
14. N/A
15. The fire flow water pressure at the fireline backflow assembly for the off site water is nearly 81 psi at 500 gpm and on-site water fire flow pressure is 40 psi at 500 gpm.

The above information is believed to be accurate for the proposed development entitled "**Water Utility Construction Plans for Summit Springs Development**" as designed and specified in the construction documents entitled "**Water Distribution Systems**" prepared by **Mercer Design Group**, and dated **March 26, 2007**.

PROJECT SUMMARY

An extension of the existing water main(s) located along Oak Grove Road at Hill Drive (SR 1891) and US 25/225, South of the US 225/I-26 Junction is required (under separate approval) to provide water service to the Summit Springs On-Site System. The Off-site extension was prepared by and submitted by Vaughn & Melton consulting Engineers in October 2006.

This project is, the ON-SITE DISTRIBUTION SYSTEM is for the proposed single-family subdivision development. The water extension will serve a total of 160 lots. The proposed site is currently owned and being developed by:

Summit Springs, LLC
Jeff Cosgrove, Manager
145 Terrace Mountain Drive
Hendersonville, NC 28792
828-777-0777
email: cosgrovd11@nchsi.com
Property owner: Hosannah III, Inc.

At the present time, Summit Springs, LLC will be responsible for signing the Water Line Extension Agreement (WLEA) with the City of Hendersonville.

The project will consist of 8 inch and 6 inch water mains connecting to the 8" off-site water main. This on-site system consists of approximately 10,220 l.f. of 8" looped water line and approximately 2,580 linear feet of 6 inch secondary mains and 3,635 l.f. of 2" main. The land use will be single family residential. For more information regarding this proposed project see the accompanying plans.

It is estimated that this project will be completed within 90 calendar days after initial road grading has been completed, assuming favorable weather conditions. An authorized representative of Mercer Design Group will be observing and monitoring the progress of construction for this project. Should you have any questions, concerns or comments, please feel free to contact this office.

WATER SUPPLY

The proposed water line extension will tie into the proposed off-site 8" water main located on Hill Drive at the entrance to the subdivision.

The existing water main is owned and maintained by the City of Hendersonville Water and Sewer Department. The City of Hendersonville water system is supplied by an intake pipe on Mills River at U.S. Highway 280/NC 191 and two (2) intake pipes in the Pisgah National Forest. For further details and information on the City of Hendersonville water system, please contact:

City of Hendersonville
Attention: Mr. Lee Smith, Director
Utilities Department
305 Williams Street
PO Box 1670
Hendersonville, NC 28793
828-697-3000 ext. 3211

Once the project is complete, The City of Hendersonville will take over and maintain the proposed water main extension.

All calculations for the proposed water main extension were based on information provided by the City of Hendersonville Water and Sewer Department. The detailed information on residual pressure, flow and

static pressure on the existing water main nearest the tap was provided by the City of Hendersonville Water and Sewer Department from hydrant flow tests. The information from this static, residual and flow tests are reflected in supporting water main documentation.

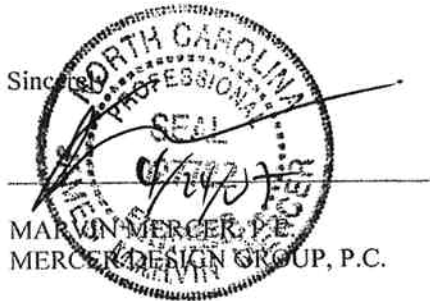
CONCLUSION

The proposed water main extension will be installed by a licensed North Carolina Utility Contractor and inspected by both the engineer and a City of Hendersonville representative.

The proposed water main extension will be connecting to an existing 8" water main. There is sufficient flow and pressure to provide adequate fire protection and residential service. Fire protection will be provided via proposed hydrants along the proposed extension.

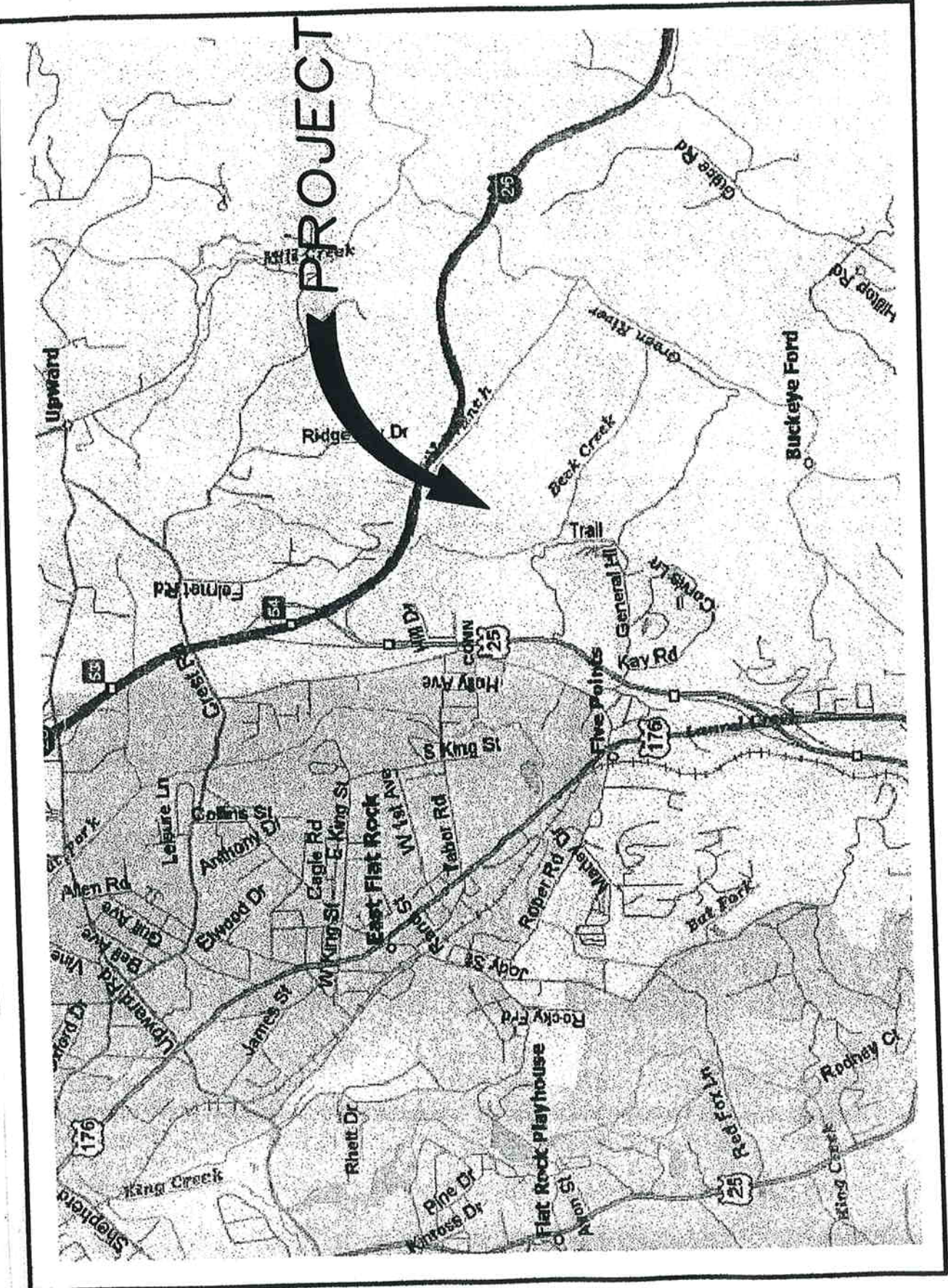
The proposed extension should have a negligible impact on the overall water system capacity depletion. A water availability letter has been provided by the City of Hendersonville for the proposed project. Therefore, it is the opinion of Mercer Design Group that the proposed water main extension can serve the site with both water service and fire protection.

Sincerely,



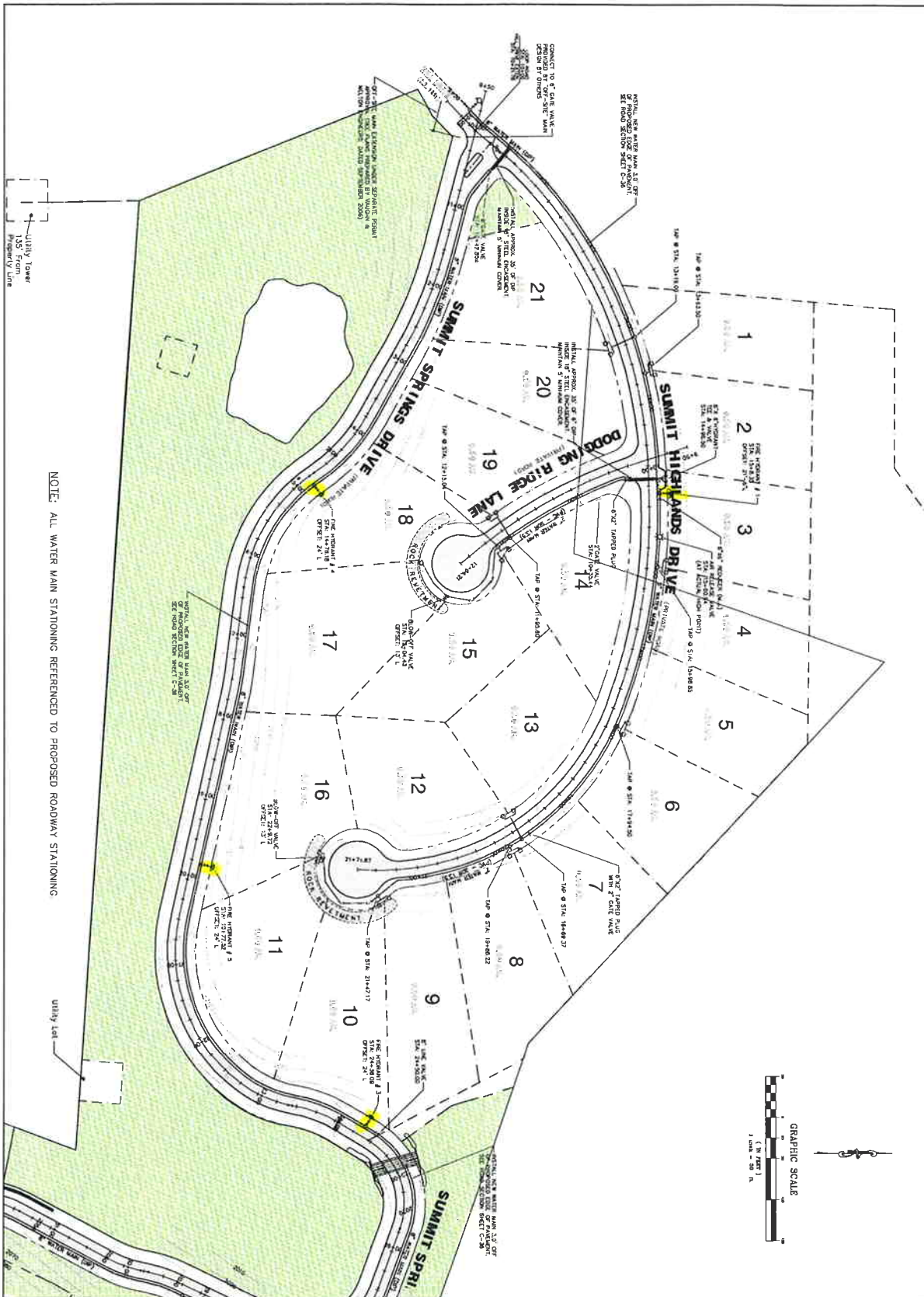
MARVIN MERCER, P.E.
MERCER DESIGN GROUP, P.C.

PROJECT SITE

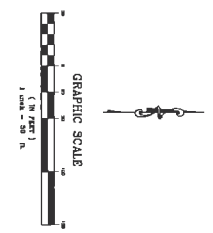


VICINITY MAP

Not To Scale



NOTE: ALL WATER MAIN STATIONING REFERENCED TO PROPOSED ROADWAY STATIONING



Sheet No. C-30	SUMMIT SPRINGS ON-SITE WATER DISTRIBUTION SYSTEMS	Mercer Design Group, PC 1011 KENNETH FRANKLIN DRIVE, WEAVERVILLE, NC 28787 Phone: 828-645-7000 Fax: 828-645-7314 mercerdesign@charter.net	Designed: JHM DRP Drawn: DWM Checked: JHM DRP Reviewed: JHM Scale: 1"=50' Date: MARCH 2007	NO. REVISIONS/SUBMISSIONS 1. 001 COMMENTS	DATE 03/03/2007
Sheet of Project No: 0629	HENDERSON COUNTY HENDERSONVILLE, NORTH CAROLINA WATER PLAN	P.O. BOX 1516/113 N. MAIN ST. WEAVERVILLE, NORTH CAROLINA 28787 Phone: 828-645-7000 Fax: 828-645-7314 mercerdesign@charter.net	NORTH CAROLINA PROFESSIONAL ENGINEER JAMES MARVIN MESSER	NO. REVISIONS/SUBMISSIONS 1. 001 COMMENTS	DATE 03/03/2007

HENDERSON COUNTY REVIEW OF CITY WATER LINE EXTENSIONS

Project Name: Summit Springs On Site
 Size of Water Line (Main & Distribution Pipe Size): 8" DIP CL 350; 6" DIP CL 350; 2" PVC SDR 13.5 (16,429 linear feet of water line)
 County Staff Reviewing Extension: Rocky Hyder, Fire Marshal; Matt Card, Subdivision Administrator; Autumn Radcliff, Senior Planner

Has the project been reviewed under the **County Subdivision Ordinance**? Yes No N/A

Date reviewed: _____
 Action: Approved with conditions.
 Conditions: Standard conditions.
 Comments: _____

Has the project been reviewed under the **County Manufactured Park Ordinance**? Yes No N/A

Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Has the project been reviewed under the **County Zoning Ordinance (i.e. Special-Use or Conditional-Use Permit)?** Yes No N/A

Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Is the project subject to **any other County Land Use Ordinance**? Yes No N/A

If yes, explain:

Does the project conform with the **2020 Henderson County Comprehensive Plan (CCP)**? Yes No N/A

A portion of this property was identified as an industrial site under the Future Land Use Map of the CCP. The remaining area is identified as being in the RAA which generally does not support the extension of public utilities. However, the project's close proximity to the existing waterline makes this extension appropriate. Additionally, the Planning Board and Planning Department supports extending public utilities to this subdivision.

Does the project have **adequate hydrant location and spacing**? Yes No N/A

Description of **hydrant type and thread**: Mueller Centurion – National Standard Thread

Does the estimated flow rate (gpm) meet **fire protection standards**? Meets standard for structure spacing of 100 feet or more Yes No N/A

BOARD OF COMMISSIONERS APPROVAL

- Approved
- Not Approved
- Conditional Approval (See Comments)

Date of Board Review: _____
 Comments: _____

**PROJECT SUMMARY
WATER UTILITY EXTENSION
Edneyville Inn Subdivision**

May 31 2007

To: Honorable Mayor and Members of City of Council
City of Hendersonville

From: Water & Sewer Department Staff

RE: STAFF RECOMMENDATION FOR ACCEPTANCE OF
WATER UTILITY EXTENSION AGREEMENT (WUEA)

This is a project to extend lines to provide water service to a **proposed residential development consisting of 31 lots**. This project is located in the **Edneyville Community with the proposed entrance being west of St. Paul Road**. This project is under the reviewing jurisdiction of **Henderson County**. The entire cost of the proposed water line extension is to be paid for by **Edney Inn Development Company, LLC of North Myrtle Beach, SC**.

This project requires approximately **2,995** linear feet of water line sized as following:

Approximate Length:	Description:
1585'	8" DIP CL350
750'	6" DIP CL350
660'	2" PVC SDR 13.5

Fire Protection will be provided by the installation of four (4) fire hydrant(s).

Connections will be held due to pressure restrictions until the East Side tank project is completed.

The undersigned represents this utility extension request has been evaluated in light of the adopted land use plan for the municipality or Henderson County. In the absence of such a plan for the general area to be served, this extension has been evaluated in terms of its future impact on existing land uses.

Reviewing Jurisdiction: **Henderson County**

Approved Disapproved

Narrative Comments Provided: Yes No

Signing Official: _____

Date: _____

Based on the above information, the Water & Sewer Department has the capacity to support this additional infrastructure and associated connections and hereby recommends approval of said project contingent upon final approval of construction plans and specifications by the Water & Sewer Department.

A motion is needed to approve and accept this project. Suggested wording for motion is as follows:

"I move to accept this Water Utility Extension Project and to authorize the City Manager to execute the associated Water Utility Extension Agreement on behalf of the City."

Water & Sewer Department: Approved Disapproved Date: 5-31-07

City Council: Approved Disapproved Date: _____

ENGINEER'S REPORT

FOR

WATER SYSTEM IMPROVEMENTS

To Serve

EDNEYVILLE INN SUBDIVISION

Edneyville

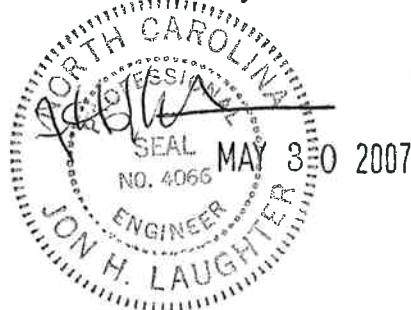
NORTH CAROLINA

Project Number 06-275

Applicant:

City of Hendersonville
Hendersonville, North Carolina 28793

PWSID # NC0145010
Henderson County



Prepared By:

LAUGHTER, AUSTIN & ASSOCIATES, P.A.
131 Fourth Avenue East
Hendersonville, North Carolina 28792

May 30, 2007

ENGINEER'S REPORT

EDNEYVILLE INN SUBDIVISION WATER MAIN EXTENSION

1. NAME AND ADDRESS OF APPLICANT

City of Hendersonville
PO Box 1760
Hendersonville, NC 28793

2. PROJECT DESCRIPTION & INTRODUCTION

This project is located East of Hendersonville in the Edneyville Community of Henderson County on U.S. 64. The proposed entrance is west of SR1802 St. Paul Road. This proposed residential development will consist of 31 lots to be served with domestic water. Because of the topography of the proposed development relative to the City's existing water system and reservoir supply, the planned water lines will be in a low pressure zone. The planned water extension will serve 28 of the 31 proposed lots. The remaining 3 lots are frontage lots along U.S. 64 and will be served with individual service taps from the existing waterline along U.S. 64.

This City of Hendersonville water system improvements project is being done by a private utility contractor for the developers of Edneyville Inn Subdivision.

This proposed water extension project will require connecting to an existing 12" waterline on the south side of U.S. 64 with a 12"x8" tapping sleeve, road bore and jack under U.S. 64. An 8" waterline will be extended along the west side of (proposed) Hillcrest Drive to the intersection with J.T. Way and a 8"x6" tee with an 8" and 6" gate valves will be installed. A 6" waterline will be extended along the east side of J.T. Way and end with a fire hydrant and 6" plug. From the intersection of J.T. Way and Hillcrest Drive, the 8" waterline will be extended to the intersection of Hillcrest Lane where an 8"x6" tee will be installed. A 6" line will be extended approximately 70 feet westward along the south side of Hillcrest Lane to a point where a 6"x6" hydrant tee and hydrant will be installed. The 6" tee will be tapped 2" and a 2" waterline will be extended to the end of the cul-de-sac with a 2" post flush hydrant blowoff. From the intersection of Hillcrest Lane and Hillcrest Drive, a 6"x2" reducer will be installed and a 2" line will extend to the end of the cul-de-sac with a 2" post flush hydrant blowoff.

In Summary, a total of approximately 1,585 feet of 8" ANSI/AWWA C151/A21.5 CL350 DIP, approximately 750 ft. of 6" ANSI/AWWA C151/A21.5 CL350 DIP, and approximately 660 ft. of 2" SDR13.5 CL315 PVC along with all related appurtenances will be installed on-site. Four (4) hydrant tees and fire hydrants will be installed, one (1) air release valves, and three (2) 2" post-flush hydrant blow-offs will be installed.

3. DESCRIPTION OF FUTURE SERVICE AREAS

This extension will immediately serve 31 proposed residences in the proposed Edneyville Inn Subdivision development. No additional extensions or service connections are

planned form this proposed extension project. Existing lines are adequate for serving surrounding areas.

4. PRESENT AND ANTICIPATED WATER DEMANDS

Present water demands are to serve the 31 residences proposed in Edneyville Inn Subdivision off of U.S. Highway 64. Thus the design demand is approximately 31 connections @ 400 GPD/connection. Total demand is approximately 12,400 GPD.

5. CHARACTER OF THE SOURCE SUPPLY

The water supply for this project is from the City of Hendersonville Water Treatment Plant.

6. AGREEMENTS TO PURCHASE WATER

Not Applicable

7. USEFUL LIFE OF FACILITIES

The useful life of the water lines for this project is expected to be 50 years minimum.

8. MAXIMUM DAILY TREATED WATER SUPPLY AND MAXIMUM DAILY DEMAND

The maximum daily treated water supply for the City of Hendersonville water plant is 12MGD. The average demand is 7.2 MGD, with a daily peak (for the year) of 9.5 MGD

9. IDENTIFICATION & DESCRIPTION OF THE SERVICE AREA

The initial service area for this project is approximately 31 domestic connections.

10. CONSIDERATION OF ALTERNATIVES TO CONSTRUCTING A NEW WATER SYSTEM.

Not applicable

11. POPULATION RECORDS AND TRENDS

According to the Office of State Planning, The population of the City of Hendersonville in 1998 was 9,538 persons. The growth rate from 1990 to 1998 was 30.9%.

12. PRESENT AND FUTURE YIELD FROM THE SOURCES OF SUPPLY

The City of Hendersonville Water Plant currently draws water from the Mills River. The present and future yield of the source of supply is expected to be adequate for the City of Hendersonville's needs.

13. **PROPOSED WATER TREATMENT PROCESSES**

Not Applicable

14. **DESIGN BASIS**

The design basis for this project is to provide adequate flow @ 30 psi minimum at the street.

15. **PRIORITIZED LIST OF INFRASTRUCTURE IMPROVEMENTS**

Not Applicable

Laughter, Austin and Associates, P.A.

Engineering • Planning • Land Surveying
131 FOURTH AVENUE EAST
HENDERSONVILLE, NORTH CAROLINA 28792

Jon H. Laughter
Donald J. Austin
Thomas P. Welbourn
James D. Chambless, Sr.

(828) 692-9089
Fax (828) 693-8822
WATS 1-800-858-LAND

PROJECT NARRATIVE.....Water

TO: Lee Smith, Utilities Director
Water and Sewer Department
City of Hendersonville

From: Laughter, Austin and Associates, PA

Date: Wednesday, May 30, 2007

Subject: EDNEYVILLE INN SUBDIVISION
PARCEL ID 0601-34-1611
WATER MAIN EXTENSION

Ref: LAA Job No.: LAA06-275

An extension of the existing water main(s) located along U.S. Highway 64 (east of Hendersonville, near St. Paul Road) is required to provide water service to the above referenced project. This project is proposed to be a **single-family residential** development. The water extension will serve a total of 36 lots. The proposed site is currently owned and being developed by:

Edney Inn Development Company, LLC
Clifford Dalton, local agent
P.O. Box 4399
North Myrtle Beach, South Carolina 29597
Contact: Clifford Dalton
685-7625
Email address; unknown

The sewer service for this project will be provided by individual septic systems.

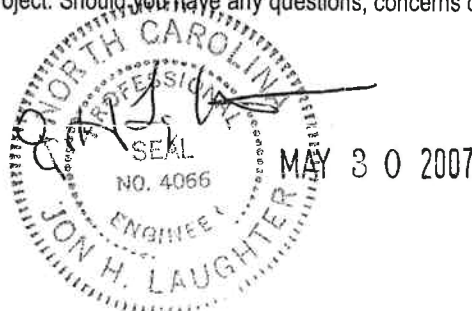
At the present time, **Clifford Dalton** will be responsible for signing the Water Line Extension Agreement (WLEA) with the City of Hendersonville.

The project will consist of approximately 1,585 LF of 8" ANSI/AWWA C151/A21.5 CL350 DIP, 750 LF of 6" ANSI/AWWA C151/A21.5 CL350 DIP, and approximately 660 LF of 2" AWWA SDR13.5 PC315 PVC, valves, fire hydrants, air release valves, 2-inch post-flush blow-off valves, and all other related appurtenances. For more information regarding this proposed project see the accompanying preliminary plans.

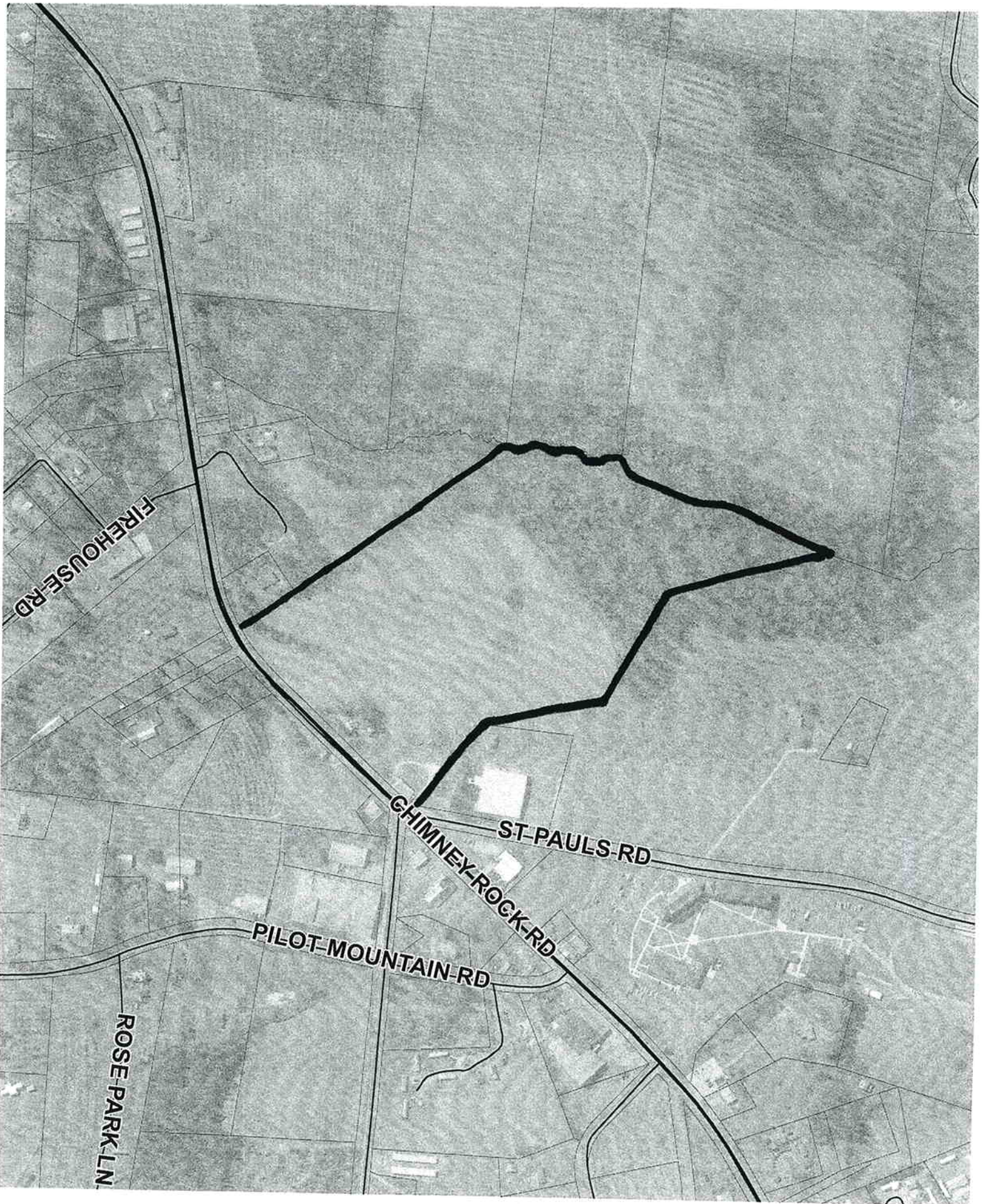
No water service connection will be activated on this water system extension until a City of Hendersonville proposed (ref: 07-00466 Eastside Dana School Phase 1) booster pump station and ground water reservoir (planned for the Eastern Zone of the city's water system) has been approved and permitted by Public Water Supply.

This project is estimated to be completed (75) days after final grading has been completed, assuming favorable weather conditions. I, or an authorized representative of my company, will be observing and monitoring the progress of construction for this project. Should you have any questions, concerns or comments regarding this project please feel free to contact me.

Engineer's Signature
Date

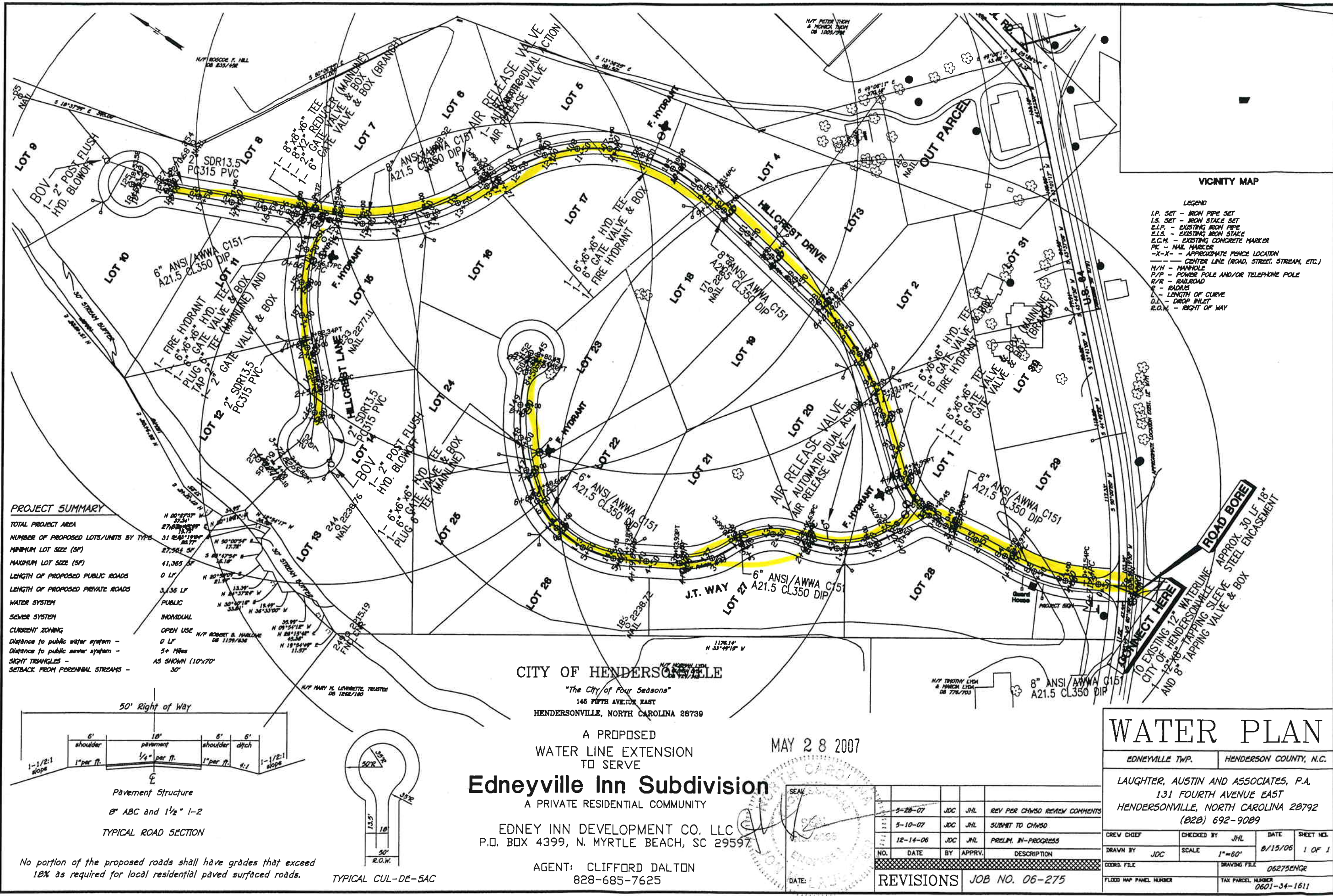


Jon H. Laughter, PE



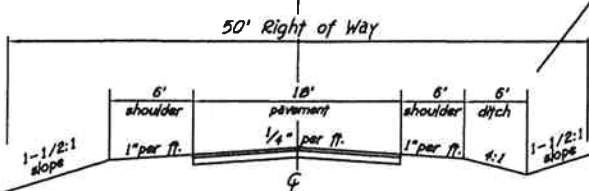
Edneyville Inn Subdivision

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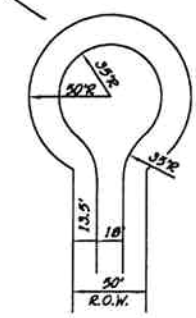


PROJECT SUMMARY

TOTAL PROJECT AREA	27,841 SF
NUMBER OF PROPOSED LOTS/UNITS BY TYPE	31 LOTS
MINIMUM LOT SIZE (SF)	27,841 SF
MAXIMUM LOT SIZE (SF)	41,365 SF
LENGTH OF PROPOSED PUBLIC ROADS	0 LF
LENGTH OF PROPOSED PRIVATE ROADS	3,36 LF
WATER SYSTEM	PUBLIC
SEWER SYSTEM	INDIVIDUAL
CURRENT ZONING	OPEN USE
Distance to public water system -	0 LF
Distance to public sewer system -	5+ Miles
SIGHT TRIANGLES -	AS SHOWN (10'x70')
SETBACK FROM PERENNIAL STREAMS -	30'



TYPICAL ROAD SECTION



TYPICAL CUL-DE-SAC

CITY OF HENDERSONVILLE
 "The City of Four Seasons"
 145 FIFTH AVENUE EAST
 HENDERSONVILLE, NORTH CAROLINA 28739

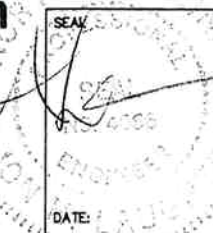
A PROPOSED
 WATER LINE EXTENSION
 TO SERVE

Edneyville Inn Subdivision
 A PRIVATE RESIDENTIAL COMMUNITY

EDNEY INN DEVELOPMENT CO. LLC
 P.O. BOX 4399, N. MYRTLE BEACH, SC 29597

AGENT: CLIFFORD DALTON
 828-685-7625

MAY 28 2007



NO.	DATE	BY	APPRV.	DESCRIPTION
1	5-28-07	JDC	JHL	REV PER CHMSO REVIEW COMMENTS
2	5-10-07	JDC	JHL	SUBMIT TO CHMSO
3	12-14-06	JDC	JHL	PRELIM. IN-PROGRESS

WATER PLAN

EDNEYVILLE TWP.		HENDERSON COUNTY, N.C.	
LAUGHTER, AUSTIN AND ASSOCIATES, P.A. 131 FOURTH AVENUE EAST HENDERSONVILLE, NORTH CAROLINA 28792 (828) 692-9089			
CREW CHIEF	CHECKED BY	DATE	SHEET NO.
JDC	JHL	8/15/06	1 OF 1
DRAWN BY		SCALE	
JDC		1"=60'	
COORD. FILE		DRAWING FILE	
		06275ENGR	
FLOOD MAP PANEL NUMBER		TAX PARCEL NUMBER	
		0601-34-1611	

REVISIONS JOB NO. 06-275

HENDERSON COUNTY REVIEW OF CITY WATER LINE EXTENSIONS

Project Name: Edneyville Inn Subdivision
 Size of Water Line (Main & Distribution Pipe Size): 1,585' – 8" DIP CL 350; 750' – 6" DIP CL350; 660' – 2" PVC SDR 13.5
 County Staff Reviewing Extension: Rocky Hyder, Fire Marshal; Matt Card, Subdivision Administrator; Autumn Radcliff, Senior Planner

Has the project been reviewed under the **County Subdivision Ordinance**? Yes No N/A
 Date reviewed: 10/17/06
 Action: Approved with conditions.
 Conditions: Standard conditions.
 Comments: _____

Has the project been reviewed under the **County Manufactured Park Ordinance**? Yes No N/A
 Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Has the project been reviewed under the **County Zoning Ordinance (i.e. Special-Use or Conditional-Use Permit)**? Yes No N/A
 Date reviewed: _____
 Action: _____
 Conditions: _____
 Comments: _____

Is the project subject to **any other County Land Use Ordinance**? Yes No N/A
 If yes, explain: _____

Does the project conform with the **2020 Henderson County Comprehensive Plan (CCP)**? Yes No N/A
 The project is in the Rural/Transition area. It is anticipated that the expansion of public utilities will occur in this area over the life of the CCP (20 years).

Does the project have **adequate hydrant location and spacing**? Yes No N/A
 Description of **hydrant type and thread**: Mueller Centurion – National Standard Thread

Does the estimated flow rate (gpm) meet **fire protection standards**? Meets standard for structure spacing of 100 feet or more Yes No N/A

BOARD OF COMMISSIONERS APPROVAL

Approved
 Not Approved
 Conditional Approval (See Comments)

Date of Board Review: _____
 Comments: _____